

Address by
The Honorable Joe Manchin, III
Governor of the State of West Virginia
Before the
U.S.-China Economic & Security Review Commission
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Overview

Good morning and thank you for this opportunity to address the U.S.-China Economic and Security Review Commission. It is my pleasure to represent the state of West Virginia in these hearings and to assist the Commission in fulfilling its statutory mandate from Congress in Public Law 109-108.

As this Nation's second largest coal producing State, West Virginia has a paramount interest in the development of world energy supplies, joint research and development programs with other nations, and the implementation of new and innovative energy technologies that provide reliability, security and environmental responsibility.

Because of its wide availability, versatility and reasonable cost, coal will prove to be of strategic importance to many developing countries in the future, including China. For this reason, I am particularly pleased to offer my perspectives today.

Globally, energy demand and the use of coal will continue with unprecedented growth for the next twenty-five years. A number of developing nations are leading this charge because the resource is available and inexpensive. Yet we will also see growth in developed nations as well. Dramatic increases in coal use are projected in India, Russia, Japan, Indonesia and the United States. Just four years ago, our global consumption of coal was 5.4 billion tons, or about 96 million tons per week. By 2030, the planet will double its use of coal and we are expected to be using about 10.5 billion tons annually.

China, in particular, is at the forefront of this demand. China's population growth is anticipated to be at 1.5 billion by 2020. As the world's largest country (by population) grows, so will her appetite for resources.

By 2020, the People's Republic is expected to increase its coal production from 1.7 billion tons per day today to more than 3.2 billion tons per day. The pressing needs for this growth in coal use will be in electricity, coal liquefaction and syngas.

From an electricity perspective, the country's electric generating capacity will double to 1000 gigawatts by 2020. Specifically, the Energy Information Administration of the U.S. Department of Energy has estimated that over 100,000 megawatts of coal-based power plants will be built in China between 2003 and 2010. Between 2010 and 2015, another 90,000 megawatts is forecasted to be built.

Changes in the magnitude of China's oil use also bear attention. Just seven years ago, consumption was 4.9 million barrels per day. That figure is expected to jump to 14 million barrels per day in 2025, an increase of 189 per cent, which approximates the production capacity of Saudi Arabia. Oil production in China already has peaked, so more than 9 million barrels per day will be imported. This issue alone will impact the growth and development of mature and emerging economies throughout the world.

These oil figures also impact coal use. Beijing already has announced an outlay of \$20 billion for coal-to-liquid facilities, where coal is converted for use as a liquid fuel.

This unprecedented energy growth has obvious implications for world energy markets, security and the environment. For example, the International Energy Agency's World Energy Outlook 2006 predicted that China would surpass the United States in CO₂ emissions by 2009.

In the face of these challenges, the question becomes: what can we do, collectively, to ensure mutually acceptable outcomes?

Surely, collaboration has a role. It is my belief that it is better to help manage a process than to watch from the sidelines. As such, in West Virginia, our policymakers, researchers and businesses have begun to work with their counterparts in China.

Highlights of Several West Virginia Related Initiatives

In West Virginia, individual collaborations are underway that seek to expand the role that technology can play in meeting both our, and China's, energy goals.

One area is energy efficient transformers.

FCX Systems, Inc., located in Morgantown, West Virginia, has been selling Solid State Frequency Converters and Preconditioned Air Units to the aviation industry in China for over 14 years. FCX power and cooling units allow aircraft to turn off their air processing units (APU), which consume expensive jet fuel. The FCX equipment operates on utility power at a very high efficiency rate, which saves energy and also is extremely environmentally friendly. The FCX units save energy and offer no pollution into the environment thus making them more efficient and environmentally friendly than using the aircraft APU or the former means of supplying power and air with diesel-powered equipment. FCX has over 200 units in China at 15 airports.

Another area is knowledge sharing in the emerging area of coal-to-liquids.

West Virginia has activities in various stages of planning and design for coal-to-liquid facilities in the State. These build upon existing knowledge and technologies to produce substitute transportation fuels from coal and from a coal/biomass blend. Much can be learned as the two countries explore common challenges of using their vast coal resources to fuel their transportation sector.

For example, under the auspices of the U.S.-China Clean Energy Protocol, West Virginia University (WVU) has initiated a program of research with the Shenhua Group Corporation to study the economic and environmental impacts of deploying a 120,000 barrel per day coal-to-liquids plant in Shanxi Province in Inner Mongolia. Based on China's need for petroleum for its transportation sector, coal-to-liquids industries may be widely deployed in China in the future. This research will be expanded to include a study of carbon sequestration associated with the potential emissions from the plant. Carbon capture and storage will help to meet an overall goal of zero emissions for the plant. Success will also help China to develop better carbon management technologies for these emerging coal-to-liquids facilities.

In addition, WVU is developing a U.S.-China Energy Center within the university's National Research Center for Coal and Energy to coordinate energy related activities between the U.S. and China. Initial efforts will focus on coal utilization, opportunities for U.S.-China cooperation in energy related issues, business opportunities for West Virginia firms, and training, education, and research programs for WVU and other universities and colleges in the state.

The WVU-Shenhua activities and the U.S.-China Energy Center compose the current activities under Annex II of the U.S.-China Clean Energy Protocol. These activities support higher level interactions between the governments.

Carbon Management Opportunities

The activities also provide a bridge into another area for collaboration, that of carbon management.

It is important that all major coal consuming countries, China included, begin now to pursue carbon management options that address climate change, reduce greenhouse gases and provide energy reliability and security.

Reducing or offsetting carbon dioxide emissions is the primary objective of a new suite of technologies that are focused on carbon capture and storage. Carbon dioxide can be captured directly from an industrial source and then concentrated into a nearly pure form which can be stored in geologic formations below the earth's surface. Potential storage solutions include depleted oil and gas reservoirs, saline-filled formations or unmineable coal seams. In addition, carbon dioxide can assist in enhanced oil recovery, enhanced coal bed methane recovery, or be fed to algae with the expanding biomass converted to biofuels.

I believe China, and other nations, can learn from a series of innovative carbon sequestration demonstrations underway in the U.S. The U.S. Department of Energy (DOE) has formed a nationwide network of regional partnerships to help determine the best approaches for capturing and permanently storing greenhouse gases. The Regional Carbon Sequestration Partnerships (RCSPs) are government/industry efforts tasked with

determining the most suitable technologies, regulations, and infrastructure needs for carbon capture, storage, and sequestration in different areas of the United States. It is my pleasure to serve this year as Chairman of the Southern States Energy Board, a regional organization of 16 states and two territories. The Southern States Energy Board serves as the lead organization for one of the partnerships, the Southeast Regional Carbon Sequestration Partnership. Additionally, the entire partnership program is managed by DOE's National Energy Technology Laboratory in West Virginia.

Grid Modernization

Another area of opportunity for collaboration and lessons learned is that of electricity grid modernization. As I noted earlier, China is in the process of dramatically increasing its electric generating capacity. Smart choices in grid design and technology deployment can go a long way toward ensuring efficient, reliable and secure energy.

This is the focus of the West Virginia-based National Energy Technology Laboratory's Modern Grid Initiative. The initiative is working toward a framework that enables utilities, vendors, consumers, researchers and other stakeholders to form partnerships and overcome barriers to grid modernization. The initiative has accumulated valuable knowledge that could be shared with China, such as the need to design and install integrated communications and intelligence into the network from the beginning, because these technologies are the foundation for advanced automation, demand response measures and knowledge about grid operations.

The initiative also supports demonstrations of key technologies that can serve as the foundation for an integrated, modern power grid. The first developmental field test is underway in West Virginia. In my state, Allegheny Energy is working with the U.S. Department of Energy and technology developer Augusta Systems to deploy Augusta's sensor network infrastructure technologies within Allegheny's distribution system. This test bed circuit is being referred to as "the circuit of the future." These technologies will assist the grid by injecting distributed intelligence into the network; basically making the network smarter in terms of real-time remote monitoring and control.

Closing

There are surely lessons to be learned from these innovative technology deployments.

Thank you very much for this opportunity to join the U.S.-China Economic & Security Review Commission to discuss these very important issues. I believe that issues of energy security and reliability, as well as of environmental impact, are among the most critical global issues. The methods with which China feeds its energy appetites will surely impact the United States.

I believe that we must be proactive in ensuring that China's energy growth is undertaken in a manner that is acceptable to both nations. There are numerous opportunities for knowledge sharing, technology transfer and collaboration.

I am confident that our two countries can join together in a cooperative spirit that will resolve any differences and promote the development of efficient and environmentally responsible energy growth. I am proud that such efforts are underway in West Virginia and I am hopeful for their expansion in the future.

Thank you.

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